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Columbia University Lectures
Julius Beer Foundation

Three Lectures on
POST-WAR MONETARY STABILIZATION

By
GUSTAV CASSEL

These lectures are three of a series of six delivered by Professor Cassel at the University of Chicago and at Columbia University. The other three lectures of the series are entitled "The International Movements of Capital" and appear in a volume on *Foreign Investments*, published by the University of Chicago Press, 1928.

POST-WAR MONETARY STABILIZATION

BY
GUSTAV CASSEL



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I

INFLATION AND STABILIZATION OF CURRENCIES

In the whole history of money there has never been such a revolution in all monetary conditions as that connected with the World War. Never has such a variety of examples so instructive and on such a large scale been offered to the student of monetary theory. The experiences accumulated in this period have surpassed anything we were acquainted with before. In all future times people will go back to the monetary revolution of our age, be astonished at all the amazing mistakes of monetary policy in this period, and take the highest interest in the consequences of these mistakes and in the means by which it at last proved possible to return to normal conditions. Clearly it is the duty of the present generation to do its utmost to arrive at a clear analysis of what has happened to the world's currencies during the same period. This can be done in a satisfactory way only if we succeed in constructing a general theory of money which is comprehensive enough to include all the phenomena of the great monetary revolution to

which we have been witness. But this is not merely a matter of scientific interest. A clear and consistent theory is necessary in order that the practical business man, the banker, or the leader of monetary policy should be able to come to a deeper understanding of the questions he has to deal with, and thus have a reliable guide for his decisions. And the leading practical and theoretical economists of the world will still have to coöperate for a long time in order to build up the monetary system that shall secure to the world a solid ground for its future economic development.

Having the honor to be invited to give a series of lectures at this University, it is natural for me, in view of the situation described, to devote some lectures to the great problem of post-War monetary stabilization. It is obviously necessary in this discussion to include an analysis of the preceding inflation of currencies. I think we should do well to look upon the matter first as a purely internal problem relating only to one currency, and then to take up the relations between different currencies as affected by inflation and stabilization.

The history of money recorded many cases of inflation long before the World War, but the lessons of these cases seem to have been almost completely forgotten at that time. People actually

failed to understand that an arbitrary increase in the supply of means of payment could have any effect on the value of the currency, which was thought to be protected in some mysterious way by the gold reserves of the central bank. In consequence of this view great efforts were made to increase these gold reserves by withdrawing all gold coins from circulation and accumulating them in the vaults of the central bank. When such measures proved insufficient to keep up a decent ratio of gold cover against notes, the authorities resorted to the device of diminishing the note circulation by replacing in the widest possible degree payments in notes by payments in the form of checks. In several countries great importance was ascribed to such alterations in the composition of the means of payment actually in use, and a willing coöperation in such a policy was proclaimed to be the first patriotic duty of the whole nation.

Nothing could better illustrate the formalistic character of the prevailing ideas with regard to the foundations of the monetary system. In fact it was very difficult and it took many years of hard work to get people to understand that the only thing that has real importance for the value of a currency is the total supply of means of

payment and that any arbitrary increase of this supply must lead to deterioration of the monetary unit. Perhaps to the mind of the modern student this thought seems so clear and indeed so self-evident that he is inclined to think it unnecessary to dwell upon such elementary matters. But such a view is dangerous, because it easily might lead one to forget very important lessons of the period of inflation and might stand in the way of conclusions that are of fundamental importance for our whole conception of the nature of money. If we do not try clearly to understand the great mistakes of humanity, we shall never free ourselves from the superficial and false conceptions of which these mistakes are only a consequence.

In the present case the conception of the gold standard prevailing before the War must doubtless be made largely responsible for the false ideas that inspired monetary policy during the War and the years immediately following. The whole lesson of the world's sad experiences of monetary mismanagement can only be drawn if we realize that the gold standard is nothing else than a paper standard, the value of which is entirely dependent upon the way in which the supply of means of payment is regulated. The characteristic feature of the gold standard is only that this

supply is regulated with the special object of keeping the value of the currency on a certain par with gold. When this is truly understood, it is immediately realized that a gold standard is exposed to inflation in the same manner as a paper standard, and that without a strict limitation of the supply of means of payment, no guarantee for stability can be given by anything we are accustomed to look upon as "gold cover."

If we start from the elementary idea that the value of the monetary unit is always determined by the total supply of means of payment representing this unit, we are able to present the general theory of inflation in a very simple form. Inflation begins with an arbitrary increase in the supply of means of payment. It does not matter what form this increase takes. During the War some governments simply caused the central bank to print more notes and put them at their disposal in the form of advances. Other governments preferred to issue big loans and even resorted to the means of imposing high taxes. But in so far as the buyers of government bonds or the taxpayers had to use bank credits for their payments, and bank credits were arbitrarily extended in order to facilitate such payments, the effect was the same. In all cases a nominal purchasing power was

created without any corresponding increase in the quantity of goods that could be bought. The result must then inevitably be a rise of prices. This rise must go so far that an equilibrium is brought about between nominal purchasing power and actual supply of goods.

We cannot tell how much prices will rise. The endeavors which the old quantitative theory of money made in this direction were doomed to failure. When the central bank issues a certain quantity of new notes, it is always possible that a part of these notes will be paid back to the bank. The only thing we can know with certainty is that when the community is supplied with an additional purchasing power not justified by an increase in the volume of trade to be transacted, the result will be a rise in prices. At a higher level of prices, however, the community will have use for a greater volume of means of payment, and thus a part of the freshly created currency is retained in circulation. The increase in the circulation, or, more generally, in the total supply of means of payment, will be proportional to the rise in prices. If, now, the same process is repeated and an additional purchasing power is created, causing a further rise in prices, there will be a corresponding in-

crease in the total volume of means of payment which is permanently needed by the community. Surveying the process for a longer period, we shall find a continual increase in the total supply of means of payment and a proportional rise of the general level of prices. We cannot say that either the one or the other of these two movements is cause or effect. Both are the result of the continual creation of nominal purchasing power. But a necessary consequence of the process is a general proportionality between prices and the supply of means of payment. In this new form, the quantitative theory of money is irrefutable and represents a not unimportant progress for which economic theory is in debt to the experiences of the War.

The theory has always recognized that alterations in the velocity of circulation would cause a modification in the connection between prices and the quantity of money. Sometimes even too much importance has been imparted to this arithmetical truism. Our experiences of the great period of inflation indicate that variations in the velocity of circulation do not play any appreciable rôle in cases of moderate inflation; whereas in cases of violent inflation, reducing the purchasing power

of money from day to day and even from hour to hour, the circulation of money attains a quite abnormal velocity.

In the first years of inflation, people generally believed, and were even officially taught to believe, that the rise in prices was only the result of the conditions of the moment — that there was no reason for assuming any deterioration of the monetary unit, which would revert automatically to its old value as soon as trade conditions again became normal. It was generally thought that a currency possessed a power of resistance of its own against the influences of inflation. These ideas strengthened people in the belief in a coming automatic restoration and were also responsible for the widespread view that there must be a bottom level beneath which a currency could not sink. Very bitter experience was required to root out all these misconceptions. The German inflation afforded the great lesson proving the complete passivity of the value of the currency in face of a continued creation of fresh purchasing power in the form of nominal means of payment. The definite annihilation of the old German currency should for all time stand as a great warning against the first steps along the dangerous road of inflation.

The fact that inflation went on even after the termination of the War and generally did not reach its peak before 1920, showed that inflation was an illness of its own, which had to be cured by measures of a monetary character. By 1920, people had begun to grasp the necessity of stopping further inflation. The idea, however, that the pre-War value of a currency had still to be regarded in some way as its normal value caused people to believe that a stopping of inflation must necessarily be connected with a process of deflation calculated to bring the currency back to its old value. This was a much more difficult problem than people imagined, and in many cases was quite outside the sphere of practical possibilities. It was, however, to take a very long time before a more realistic view came to prevail. The fantastic ideas about restoration actually prevented people from taking serious measures for stopping further inflation; and in fact many countries that nominally set up restoration as their aim went for some years still further along the road of inflation.

The world's opinion was at the beginning very much against those who preached that a stabilization of currencies about their present values must be the general program and that an increase in

the value of the currency could only be taken into consideration in cases where the old gold parity was within close reach. The warning against the dangers of deflation was met by the recommendation, which for some years enjoyed great popularity, that deflation ought to be carried through very slowly and over a great number of years. In this way the evil effects would become inappreciable. The fallacy of this view was demonstrated in the most drastic way by the experiences that followed. A gradual and long continued increase in the purchasing power of a currency, if possible, would have the most harmful effect. We know, however, that it is practically impossible, once such a program has been officially proclaimed, to carry it through at the slow pace intended. Speculation will always anticipate a coming increase in the value of the currency and therefore precipitate the development in such a way that the authorities will lose all control of the situation. Such forces will be most powerful in the international field, and the phenomenon can therefore best be studied in connection with the analysis of the international valuation of currencies.

The International Economic Conference held in Genoa in 1922 adopted on the recommendation of its expert committee a resolution in favor of im-

mediate stabilization in the neighborhood of the actual values of the currencies. Of course, a very moderate form was given to this resolution. It met with opposition, nevertheless, and the Latin countries, with France at the head, solemnly declared that they would never accept a depreciated value of their currencies, but would struggle on to the last with a view to restoring them to their previous gold parity. We know the result. Some years were lost, in which inflation was allowed to develop still further, and in which not only the countries concerned but the whole world suffered from the insecurity of the value of unstabilized currencies.

It is worth while to remember also from those years a curious argument that was used against the program of stabilization. It was simply said that stabilization was a theoretical program, impossible to carry out in practice. The same people who made that statement put forward the restoration of the currency to its old gold parity as the only program that could be effectuated on the ground of practical experiences. Here we have a contradiction that serves particularly well to throw light upon the deepest foundations of the theory of money. A gold standard is, as I have already said, nothing else than a paper standard kept in a certain parity with gold by aid of a

systematic regulation of the supply of means of payment. This regulation gives to the currency a purchasing power corresponding to that of gold. The simplest case is, of course, when gold itself retains invariable purchasing power as against commodities. Then it is only necessary to regulate the currency so that its purchasing power remains constant. But this is precisely the same thing that we have to do when we wish to stabilize an ordinary paper currency. If it is possible to attain a stabilization at an increased value of the currency, it must *a fortiori* be possible to carry through a stabilization at the present value of the currency. If the currency is to be bound up with gold and thus become a gold standard, stabilization at the present gold value must be easier than stabilization at a higher, pre-War gold parity and cannot under any circumstances involve additional difficulties. Quite a different thing is that a country may have greater difficulty in coming to unanimity in the choice of a reduced level of stabilization than in a decision to restore the old gold standard.

In one point the program of stabilization at the present value requires more definiteness. We are accustomed to measure the purchasing power of our money by the aid of wholesale price index

figures. From this point of view, the stabilizing of a currency would mean the stabilizing of this price index. In reality, however, there are also other prices to be taken account of, particularly wages and the cost of living. In a country where inflation has been going on for several years, the old equilibrium between these different price levels has generally been disturbed, and it is doubtless necessary to have such an equilibrium restored before a real stabilization of the currency can be carried through. A stabilization should, therefore, always take account of the level of wages and of cost of living as well as of the level of wholesale prices and should try to find for the currency a value to which all these levels can be adjusted with the least possible disturbance.

Such considerations are of the greatest importance when an experiment is made in order to increase the value of the currency, perhaps to restore its old gold parity. Generally the process of deflation which is then necessary first results in depression of wholesale prices, whereas wages and the cost of living have a strong tendency to remain at their high levels. An attempt to fix the value of the currency at a certain gold parity must, under such circumstances, cause most serious disturbances in the economic life of the country,

which cannot be made to function normally until wages and the cost of living have been brought into a certain equilibrium with wholesale prices.

On the other hand, if a rapid inflation has been going on for some time, wholesale prices are likely to have been brought up to a higher level than wages and the cost of living, and it may be worth while so to choose the level of stabilization that it involves a certain deflation of wholesale prices. The aim must always be, with the least possible friction and disturbance, to arrive at a level of stabilization at which a true economic equilibrium will most easily establish itself.

Under difficult circumstances, it is natural enough to choose a value for the new currency slightly lower than what would correspond to the general level of prices in the country. As it is impossible to know exactly the right level of stabilization, it may be thought advisable to have a certain margin of safety. This is, at any rate, better than to choose such a high value for the currency as will imperil the whole process of stabilization. If, thus, the currency has become stabilized at too low a level, this means that the purchasing power of the currency as measured by existing price levels is too high and will have to be brought down by a process of inflation. There will generally not

be any difficulty in carrying out such a limited inflation, but even such a process may cause disturbances and must be handled with great care. The most conspicuous example of a currency having been fixed at too low a value is perhaps that of Austria, where a considerable rise in prices was afterwards found necessary in order to bring down the purchasing power of the currency to its fixed gold parity. Something similar seems to have been the case when the Belgian currency was definitely placed on a gold basis. With regard to the latest economic development, the case of Germany has been of greatest importance. The index figures seem to show that the new German currency was fixed at a gold parity somewhat below what would have corresponded to the actual purchasing power of the German currency. In so far as this was the case, a general rise in prices was bound to take place in Germany in order to bring the German index figures to a level with the index figures of other gold countries. Such a rise in prices actually took place in 1927 and was connected with a wave of prosperity which in some aspects even attained the character of a boom. This movement caused much anxiety, and doubtless great care was necessary in order to restrain it within proper limits. As index figures can never

give more than an approximate idea of the value of a currency, it will necessarily be some time before more definite conclusions can be drawn with regard to the last variations in the value of the German currency.

The history of post-War stabilization is full of interesting lessons, and for the student of economics it will always be worth while to go back to this period and to analyze the experience accumulated. The different cases may be classified in two main groups: those in which the value to which the currency had been forced down by the previous inflation was recognized as definite and taken as a basis for the stabilization; and those in which it was first attempted to raise the currency to a higher value by aid of a process of deflation. To these groups may be added a third, best illustrated by the case of Germany, where the old currency had actually been wiped out by the inflation, so that an entirely fresh currency had to be constructed. The most representative case of the first group is perhaps that of Finland, where war and revolution had brought the currency down to a fraction of its former value. The authorities succeeded by 1924 in stopping inflation and giving the currency a fairly stable value. This value was then taken as a basis for establishing a new gold

parity. As no attempt was made to raise the value of the currency, no deflation had to be gone through, and the country escaped the economic crisis connected with such a process. No external changes were made, the currency to which the people were accustomed was left unaltered, and the law was content to introduce guarantees for the new gold parity given to the currency. The recommendations so highly cherished in dilettante circles, according to which a new currency ought to be attached to some already existing gold currency or at least be defined as an exact subdivision of such a currency, were resolutely set aside, and the level of stabilization was chosen exclusively with a view to avoiding all unnecessary dislocations of the purchasing power which had already begun to stabilize itself. The complete success of the monetary reform in Finland and the fact that it was carried through with an absolute minimum of economic disturbance are a proof of the soundness of the stabilization policy that I have here outlined. The final stabilization of the Belgian currency took place essentially on the same lines, and its success is a further confirmation of the principles of stabilization applied in the case of Finland.

Sweden was the first country in Europe to

restore its currency to its old gold parity. As the currency had previously been considerably depressed, the restoration required a process of deflation. In Sweden no attempt was made to mitigate this process by extending it over a long period of years. By aid of a contraction of the currency, the general price level was brought down in a very short time to less than half of what it had been. The result was, of course, a most violent economic crisis, which annihilated the fortunes of a great many people, exposed the banks to serious difficulties, and for some time paralyzed the industry of the country. It is worth while to notice this fact because it seems often to be believed that Sweden succeeded in restoring its currency to its old gold parity without any serious difficulties and therefore could be taken as a proof of the soundness of such a policy. On the other hand, Sweden reaped the fruits of its determination and its sacrifice. The economic life of the country started again on the new basis, and in the next few years comparatively great prosperity was reached.

In Denmark and Norway an attempt was made to restore the old gold parity by aid of a gradual and inappreciable process of deflation over an indefinite series of years. The experience of these

countries forms the best proof of the impracticability of this policy. When once international speculation came to believe that a restoration of the old gold standard was to be expected, it took the currency into its own hands, and the authorities lost all control over developments. They were simply obliged to precipitate the deflation in order that the purchasing power of the currency should be made to correspond with its international value. In this way both currencies have been practically restored to their old gold parity, but the deflation which had to be gone through seriously affected the economic life of the countries. The losses were heavy, and unemployment became a most distressing factor. It will probably still take some years before an equilibrium is restored between the different groups of prices, and the economic life of the countries can again be built up on a reliable basis. An evil that always seems to attend such monetary disturbances is the spread of all sorts of false social and economic ideas, with consequent tendencies to experiment with popular devices for evading natural economic laws. This is not the least damage that European countries have suffered from their monetary disorders and their lack of a clear and consistent monetary policy.

In Great Britain the main deflation took place at the same time as that in America, and the purchasing power of the pound sterling was brought up in the neighborhood of its old gold parity. Still, in order definitely to establish this parity, prices had to be brought down by some few per cent. This deflation was regarded as obnoxious, and strong opposition arose against the restoration of the old gold standard and even against the establishing of any definite connection between the English currency and gold. The leader of this opposition was Keynes, and of course he defended his case with great cleverness and ingenuity. But on the other hand, it was clear enough that a definite solution of the currency problem must be attained within the shortest possible time, and this was practicable only by means of an immediate return to the old gold parity. Such a step would also have an immense importance for the recovery of the world's trade, in which Great Britain naturally had a paramount interest. These considerations triumphed, and the gold standard was restored in April, 1925. This step immediately proved to be a great help for the stabilization of the world's currencies at large, and there can hardly be any doubt that the stimulus thereby given to the world's trade amply compensated

Great Britain for the losses inevitably connected with even the limited deflation which had to be gone through.

In France and Italy, the combination between the highest, not to say the most fantastic, aspirations and the complete incapacity of controlling the currency so as to prevent a further deterioration, for a long time delayed the return to normal conditions. At last Italy, after having made great efforts to raise the value of its currency, had to give up this vain policy and fix its currency at a new gold value. The experiment in deflation, however, had then already resulted in serious economic difficulties, involving an unnecessary setback in the country's economic development. The great majority of the world's countries having returned to the gold standard, France cannot much longer defer a decision in this vital question.

After the War the idea was very widespread that a restoration of the Latin monetary union had to take place, or that at any rate the countries with deteriorated franc currencies were bound to coöperate in a common program of stabilization, and this fallacy long stood in the way of a resolute monetary policy in the countries concerned. The danger of being dependent in such matters upon foreign countries was first clearly perceived in

Belgium, and this country reaped the fruit of this sound insight in being able to stabilize its currency at a comparatively early date and thus to gain valuable time for its economic recovery.

Let us now look upon our problem from the international point of view. If a foreign currency has been inflated — that is to say, if its internal purchasing power has been lowered — and if at the same time our own currency has remained intact, it is natural that the price we are willing to pay for the foreign currency should be reduced in proportion to the fall of its internal purchasing power. If the general level of prices in the foreign country has been raised to double its former heights, and if the internal purchasing power of the inflated currency is therefore only half what it was before, we are clearly willing to pay only half the former price for that currency. If the new rate of exchange is fixed according to this principle, the conditions of trade between our country and the foreign one remain the same as before; and thus, if no further inflation takes place, a new economic equilibrium will be attained on the basis of this rate of exchange, and this equilibrium will possess the same stability as the old one.

If, instead, our own currency is inflated and the currency of the foreign country remains intact, an

equilibrium will be established when the price of the foreign currency has been raised as much above its old price as our general price level has risen above the old level. Combining the two cases, we may draw the general conclusion that when two currencies have been inflated, a new rate of exchange will establish itself which is equal to the old rate of exchange multiplied by the quotient between the degrees of inflation in the two countries. For instance, if the British price level has been brought up to 150 as against 100 before the War, and if at the same time the French price level has risen to 600, a state of equilibrium in the trade between the two countries will be established if the rate of exchange, as measured by the price of sterling in French francs, is raised to four times the pre-War price.

For the rate of exchange between inflated currencies calculated in this way, I have introduced — it is now ten years ago — the name of Purchasing Power Parity.

~ In times of general inflation, this parity represents the true value of foreign currencies — the value at which they are certain to stabilize themselves if further inflation should be stopped, the different currencies stabilized at their present internal purchasing power, and general trade

conditions similar to those before the inflation re-established. During the whole period of inflation, it was of immense practical importance to possess this reliable measure of the true relative values of the currencies. The actual rates of exchange often showed the most wild fluctuations; and without the guidance of the Purchasing Power Parity theory, it was impossible to arrive at any reliable estimate of the true value of foreign currencies. During the War it was generally believed, and even officially preached, that exchanges were only disturbed by the obstacles which the War put in the way of international trade, and that exchanges must therefore be expected to revert to their normal pre-War levels as soon as peace was in sight. The fundamental wrongness of this view was made manifest by the Purchasing Power Parity theory. The theory first met with strong opposition but gradually gained ground and, as inflation went on and completely revolutionized the relative values of the currencies, it became generally accepted. And now after the War, when currencies and conditions of international trade have been fairly well stabilized and when rates of exchange have been seen to establish themselves at new equilibrium parities in the strictest accordance with the Pur-

chasing Power Parity theory, some people begin to say that the whole theory is only a truism which everybody must always have understood and that it is superfluous to try to teach the world things which are so self-evident! There is nothing surprising in this change of views; it is only the normal way in which a truth ultimately triumphs. Still, the Purchasing Power Parity theory deserves closer attention. The view that the theory is a self-evident truism is quite as superficial as that it is entirely wrong. I have already explained the foundations of the theory, and I think that the arguments are quite irrefutable. But, as we have seen, the theory is dependent upon certain assumptions; and as long as these assumptions are not fulfilled, the actual rates of exchanges may deviate more or less considerably from those representing the Purchasing Power Parity.

Firstly, if the internal purchasing power of a currency is still fluctuating as a consequence of inflation or deflation, the very movement of the internal value of the currency may have an effect upon its rate of exchange. A continued inflation may be reckoned upon to depress the internal value of the currency so and so much in the near future, and then the depression will naturally be

discounted to a certain degree in the present rates of exchange. In this way, a currency which is rapidly inflated may be quoted on the international exchanges considerably below the Purchasing Power Parity of the moment. This is an *undervaluation* of the currency. A similar *overvaluation* will take place if the currency is subject to a process of deflation which must be expected to raise its internal purchasing power to a higher level. The coming rise may be discounted to a certain degree in the present exchanges. Post-War times have, as we have seen, afforded good examples of this, when international speculation has thrown itself over a certain currency in the expectation that its internal purchasing power was to be raised by a process of deflation.

Secondly, as long as conditions of international trade essentially differ from that pre-War equilibrium which is the starting point of our theory, the actual rates of exchange may also deviate more or less considerably from the Purchasing Power Parities. If, for instance, the goods of a foreign country are prevented by strict prohibition from being imported into our own country, there can for the moment be no normal need for the currency of that foreign country, which must therefore be

quoted below its purchasing power. Generally an undervaluation of the foreign currency must be expected to take place when hindrances are laid in the way of the movement of goods from the foreign country to our own. Similarly, the foreign currency is likely to be overvalued if hindrances are laid in the way of the movement of our goods to that country. Such deviations from the Purchasing Power Parities were undoubtedly of some importance so long as quite abnormal interferences with international trade existed. Theoretically, deviations of the same character would be possible as a result of common alterations of tariffs. But such effects seem to be confined within very narrow limits. For instance, it is hardly possible to discern any definite effect on the exchange value of the dollar as a result of the considerable strengthening of American protectionism connected with the new tariff of 1922.

All these deviations from the Purchasing Power Parity were foreseen by the theory as it was originally built up. The very idea of an undervaluation or an overvaluation of a currency, which is now familiar to the whole world, had its origin in the Purchasing Power Parity theory, without which it is impossible even to give an exact meaning to the terms of undervaluation and overvaluation.

An overvaluation is a valuation above what would correspond to the Purchasing Power Parity. Without this conception we could never form any opinion even as to the existence of an overvaluation. It is useful to dwell upon this point, because it throws light on the very essence of economic theory. Going back to the period of inflation, we can easily find abundant cases where the actual rates of exchanges showed deviations, and sometimes even very considerable deviations, from the Purchasing Power Parities. Some people with scientific pretensions but without any deep knowledge of what economic theory really means immediately jump to the conclusion that the theory must be false, as its results do not coincide with the facts. I think I have already said enough to prove the futility of such criticism, but I wish to add a few remarks in order to elucidate the methods of economic theory. As soon as an economic movement is a result of several causes, it becomes a task of economic theory to explain the particular influence of each of these causes. In order to do so, it is generally necessary first to take out the most important factor and study its separate effect, which will then be represented by a particular movement. From this theoretical movement the

actual movement will show deviations, which we then have to ascribe to the other factors. This method of procedure doubtless involves some arbitrariness, as the first factor may be chosen in different ways. The art of economic theory to a great extent consists in the ability to judge which of a number of different factors coöperating in a certain movement ought to be regarded as the most important and essential one. Obviously in such cases we must choose a factor of permanent character, a factor which must always be at work. Other factors which are only of a temporary character and may be expected to disappear, or at any rate can be theoretically assumed to be absent, must for that reason alone be put in a subordinate position.

Applying this principle to the case before us, we must immediately come to the conclusion that the internal purchasing powers of the currencies, the exchanges between which we want to study, are the principal factors in the movement of these exchanges. Other factors, and particularly those which we have already mentioned, are of a subordinate character, if only for the reason that they are temporary and at any rate need not necessarily enter into the problem. When once the currencies

are stabilized and when trade conditions are restored to something like the pre-War equilibrium, which is at any rate possible, the causes of under- or overvaluation, which have here been analyzed, will no longer exist. Under such circumstances it is obviously necessary to regard Purchasing Power Parity as the essential factor in the movement of the exchange, and the other factors connected with monetary or trade disturbances merely as causes of deviations from the normal movement of the exchange determined by the Purchasing Power Parity. It does not matter if in any particular case it could be shown that the deviation of the actual exchange from the Purchasing Power Parity is even greater than the distance of this parity from the normal pre-War exchange. If we had not the Purchasing Power Parity theory, we should have no measure of the deviation in question, we should not be able to distinguish its causes, and the whole problem of the connections between the actual movement of the exchange and the different factors at work would be left in complete confusion.

The correctness of this analysis of the problem of international exchanges has been proved in the most convincing way by the experience accu-

mulated during the period when the world's monetary system was again brought on a stable basis. It is a very remarkable fact that in almost every particular case where a currency has been stabilized, the stabilization has taken place at a rate of exchange — say against the dollar — as exactly corresponding to the Purchasing Power Parity as existing statistical data make it possible to ascertain. Thus the Purchasing Power Parity stands out as the only essential and permanent factor determining the rate of exchange, all other factors being reduced to the rank of temporary disturbances.

The Purchasing Power Parity theory must be the foundation of every sound theory of exchanges. Even when both countries under consideration possess a gold standard, the rate of exchange between them must correspond to the Purchasing Power Parity of their currencies. The purchasing power of each currency has to be regulated so as to correspond to that of gold; and when this is the case, the Purchasing Power Parity will stand in the neighborhood of the gold parity of the two currencies. Only when the purchasing power of a currency is regulated in this way will it be possible to keep the exchanges of this

currency in their parities with other gold currencies. If this fundamental condition is not fulfilled, no gold reserve whatever will suffice to guarantee the par exchange of the currency.

Under stable currency conditions and when no radical alterations in the conditions of international trade take place, no great or lasting deviation from Purchasing Power Parity is possible. Of course, small fluctuations in the rate of exchange may be caused by fluctuations of demand and supply of bills on the exchange market. A rate of exchange which deviated considerably from the Purchasing Power Parity would be a great stimulus to the exports and a great obstacle to the imports of the one country and would work in the opposite direction in the case of the other country, and thus a reaction of immense strength would be created, tending to bring back the rate of exchange to the equilibrium determined by the Purchasing Power Parity. This equilibrium, therefore, possesses a very considerable stability. These considerations make it clear that the old theory of demand and supply is entirely inadequate as a basis for a deeper analysis of the forces governing the rates of exchange. However, a full discussion of the influences of demand and supply on the exchange market is only possible in connection with an in-

vestigation into the international movements of capital. This is a subject to which I shall revert in my second series of lectures.

Some people believe that Purchasing Power Parities should be calculated exclusively on price indices for such commodities as form the subject of trade between the two countries. This is a misapprehension of the theory. There is never a definite group of commodities that can be exported. Even a small alteration in the rate of exchange may widen or restrict the group of exportable goods. This fact contributes very largely to the stability of the equilibrium rate of exchange defined by the Purchasing Power Parity. The whole theory of Purchasing Power Parity essentially refers to the internal value of the currencies concerned, and variations in this value can be measured only by general index figures representing as far as possible the whole mass of commodities marketed in the country.

The theory of Purchasing Power Parity, as I have here expounded it, refers to an initial period in which an equilibrium in the trade between the two countries is assumed to have existed. The analysis of this equilibrium itself belongs to the domain of the general theory of international trade and could naturally not find place in an

exposition of the objects of this lecture. But the question is of great interest. In fact the Purchasing Power Parity theory proves to be the natural starting point for an exposition of the whole theory of international trade, which, when treated in this way, acquires a high degree of simplicity and lucidity.

II

THE STABILIZATION OF THE VALUE OF GOLD

The endeavors to stabilize the world's currencies after the great monetary revolution connected with the War have hitherto resulted in an almost universal return to the gold standard. Theoretically this solution was not necessary. The world had a system of paper standards, and if each of these paper standards had been simply stabilized at a certain purchasing power against commodities, the world would have had a satisfactory monetary system. Stabilization did not in itself require that the separate currencies should be bound up with the value of gold. The possibility of a rationally regulated paper standard had already been demonstrated by scientific investigation. After the War, a series of practical examples had been given, showing that at least an approximate stabilization of the purchasing power of a paper currency is possible without in any way connecting the currency with gold.

In spite of this, it was a practical impossibility at that time to bring the world at large to accept

the program of a scientifically regulated paper standard. The extremely discouraging experiences of mismanaged paper standards had fostered a deep-rooted distrust of every form of paper standard. The program in itself may have been ever so sound; the time for realizing it was no doubt the worst that could be imagined. Had an attempt been made to persuade the world of the advantages of a scientific paper standard, the solution of the problem of post-War stabilization would have been infinitely delayed. This had at all costs to be avoided. The need for an early restoration of a system of sound currencies was paramount. There was no time to be lost. The world's production and trade had to be set going again in a normal way, lest the economic and social difficulties should become utterly oppressive. And thus there was no choice but to revert to the gold standard. The fact that people all over the world were accustomed to look upon the gold standard as the normal monetary system made the return to a gold standard the easiest way to general economic recovery.

On that account it was indispensable to concentrate all forces upon building up a new system of gold standards. The comparatively rapid success of this program proved that it was based on a correct judgment of what the situation demanded.

The gold standard is, however, by no means an ideal standard. The value of gold itself is subject to variations which cause serious difficulties to every country the economic system of which is built up on the basis of a gold standard. The modern gold standard dates from the Napoleonic wars, and from this time up to 1914 we have index figures showing the alterations which have taken place in the general price level in Great Britain. These figures are proof that, apart from the short-time fluctuations of the price level, attributable to common trade cycles, great secular alterations in the purchasing power of gold have taken place. When, for instance, the index figure of Sauerbeck fell from 111 in 1873 down to 61 in 1896, this is sufficient to prove that gold is no reliable measure of value and that, even with a gold standard, economic life is exposed to serious disturbances having their root in an unstable monetary system. The period which I mention is known in economic history as a period of prolonged economic depression. The generation then living had indeed to pay a very heavy price for having built up its monetary system on a unit which could almost double its value within a quarter of a century.

These variations in the purchasing power of

gold were, however, relatively slow; and the ordinary business man, who generally does not look any further than to the troubles of the day, was apt to forget the secular movements of the monetary unit, which he was glad to leave to scientific economists to investigate. With the outbreak of the War, however, the whole situation was radically altered. It was not enough that the gold standard was abandoned and that paper standards were adopted, but even the value of gold itself was affected in such a way that it was completely discredited as a measure of other values. In fact, the variations in the purchasing power of gold in this period have been greater and more violent than at any previous time. When gold coins were drawn out of circulation and when European gold flowed in large quantities to America, a superfluity of gold arose in this country, pressing down the purchasing power of gold to about 40 per cent of what it had been at the beginning of the War. This lowest value was reached in the spring of 1920, from which date, by means of a general process of deflation, the value of gold was brought up again in a few months' time to about two-thirds of the pre-War value.

After such experiences, nobody could maintain that gold had any absolute qualifications as a

standard for the measurement of value. It was only the hopeless condition of the paper currencies of the world that made it imperative to revert to the gold standard. But the world could not do this without immediately being confronted with the problem as to how it would be possible to give to the value of gold the essentially greater stability which must be regarded as an indispensable condition for accepting gold permanently as the basis of the world's monetary system. The problem of stabilizing the value of gold was indeed not invented by speculative economists, but naturally arose out of the actual situation and the experiences which had been accumulated during the last few years.

In order to control the value of gold, we must obviously control at least important parts of its supply or demand. The control of supply is naturally a very difficult thing. The late South African professor, Mr. Lehfeldt, has suggested that the world's gold production should be put under the control of a few leading countries. Even if we disregard all the practical and political difficulties of such a program, it is obvious that a world monopoly in gold production would have to be confined in the main to preventing a fall in the value of gold by restrictions of output, but would stand

almost powerless against a rise in the value of gold. Now such a rise in the value of gold is, as I shall presently demonstrate, precisely what we have to expect in the future. The world's gold mines will not be able to produce the quantities of gold which would be necessary for supplying the world so abundantly with fresh gold that an increasing scarcity of the metal may be avoided. If this is the case, the control of all the gold mines of the world would not help. For this reason, every such plan must be left out of consideration. We may trust private enterprise to do its best to supply the world with gold as abundantly as the prevailing conditions will allow.

It thus remains to consider how far the control of demand is possible. To put restrictions on the demand for gold for industrial purposes is a device which can hardly be seriously contemplated, as supervision would be practically impossible. Quite another thing is the control of the monetary demand for gold. This demand has its origin in the need for gold coins for circulation and in the central bank's need for reserves. The whole demand is therefore concentrated in the governments and the central banks. A control of this demand only requires coöperation, we must admit that it is at

least an object for the realization of which it may be well worth while making an effort.

The need for gold for circulation is under the absolute control of the governments. If we have to meet a scarcity of gold, we can always withdraw gold coins from circulation and substitute notes. The world has now learned by experience that people are quite willing to exchange gold coins for notes. Where gold certificates circulate, as is the case in the United States, it is a very easy thing to exchange these certificates for notes. Thus this particular demand for gold can at any moment be entirely eliminated. On the other hand, if it should prove necessary to increase the demand for gold in order to prevent a fall in its value, nothing is easier than again to put gold coins or gold certificates in circulation. Coöperation between the different governments in this sphere could, therefore, easily exercise complete control over this demand.

For the rest, the monetary demand for gold is determined by the requirements of the central banks in respect of reserves against their notes and deposits. The old generation was brought up in the belief that these requirements were determined by some mysterious natural law. Experience and a deeper analysis have, however, taught

us that these requirements are largely conventional and that the ratio of a central bank's gold cover may be altered within very wide limits without any effect upon the value or the security of the currency. The modern conception, according to which the purchasing power of money is exclusively dependent upon the scarcity in the supply of means of payment, reduces the gold reserves of the central bank to the more subordinate function of being a means for adjusting the small fluctuations which may take place in the daily value of a currency whose general purchasing power is kept on a level with that of gold. For this purpose relatively small gold reserves are quite sufficient, and even these may in many cases be replaced by deposits in leading financial centers. Thus the present demand for gold reserves can easily be reduced, say to half of what it is at present, and an immense quantity of gold can thereby be set free. Here, then, we have a most powerful means of regulating the value of gold. By the coöperation of central banks in this field, it would doubtless be possible to make an effective resistance against a tendency to a rise in the value of gold. Still more easy is it, of course, to prevent a fall in this value. For that purpose, the central banks would only have to increase their reserve

requirements. The only thing that is really needed in order to make practicable the policy of economizing with gold reserves along the lines now indicated is the education of public opinion. Just as the public has been taught that gold cover ought to reach 50 per cent, it can be taught that 25 per cent is enough; and if brought up to such views it will have absolutely the same confidence in a currency with such gold reserves as it used to have in the earlier currency.

A deliberate regulation of the value of gold must, of course, always be adjusted to the conditions of the moment. Since the time when, by a great process of deflation, the value of gold was brought down to a level corresponding to a price index figure of about 150 as against 100 before the War, the principal immediate danger has been that the great superfluity of gold that prevailed in the United States should induce the authorities to a more liberal supply of means of payment and thus become the cause of a new rise of the American price level. Such a decrease in the purchasing power of the dollar would undoubtedly have been followed by a corresponding decrease in that of gold. To prevent this fall and to keep the value of gold constant, it was necessary that the American authorities should treat the superfluous gold as a

reserve for the future, not being allowed to exercise any influence on the present supply of means of payment. I shall have an opportunity in my next lecture to discuss this policy more fully, and I shall here confine myself to stating that the result was a stabilization of the value of gold, which, even if not quite complete, has been of inestimable benefit to the economic life of the whole world.

The post-War superfluity of gold is, however, of an entirely temporary character, and, as I am now going to show, the great problem before us is how to meet the growing scarcity of gold which threatens the world both from increased demand and from diminished supply. We must solve this problem by a systematic restriction of the monetary demand for gold. Only if we succeed in doing this can we hope to prevent a permanent fall of the general price level and a prolonged and world-wide depression which would inevitably be connected with such a fall in prices. Considering the great importance of this problem, we must devote great attention to the investigation of the general growth of the demand for gold and of the increase in the supply which is necessary to meet this growing demand. It is clear enough that such an increase must take place in connection with the world's economic development. We must therefore

try to find out how great the normal or average increase is during a long period and in this way come to some estimate of the annual additions to our accumulated gold stock which are likely on an average to be required in the future. We cannot in such matters be content with general phrases; we must come down to arithmetical calculations, even if they must necessarily be of an approximate nature.

In the period from 1850 to 1910, the world's total stock of gold increased from 10 billion German gold marks to 52 billion. I give the figures in German gold marks because the original statistical material on which I have made my calculations is expressed in German currency. We thus find that the total stock of gold has, during the said period, been multiplied by 5.2. This is equivalent to an average annual increase of 2.8 per cent. This increase in the total stock of gold took place without resulting in any rise of the general level of prices. In fact this level, as measured by British index figures, representing for the whole period gold prices, was almost exactly the same at the end of the period as it was at the beginning. Thus the annual increase of 2.8 per cent represents for the said period a normal increase, in the sense that this was just the addition to the world's stock of

gold required annually in order to keep the general level of prices unaltered. The definite consumption of gold may be estimated at something like 2 per mille annually of the accumulated stock of gold. The annual production required for stability is, therefore, 3 per cent of the total stock of gold.

As this stock is continually growing, the absolute amount of the production required will obviously grow at the same pace. Thus, if a certain constant production is sufficient for the present, it is certain to become insufficient in the future. Even a production that is now unnecessarily high must after some years become insufficient. I have called this result the *paradox of the gold standard*. According to what we know about the world's resources of gold, it must in the long run be impossible to produce as much gold as the stability of the gold standard would require.

Now my calculation refers to the period of 1850-1910, and its results are, strictly speaking, valid only for this period. But as long as the world's general economic development goes on at a pace of about 3 per cent a year, which seems to have been normal for Western Europe during the said period, the annual production of gold required to keep up a stable value of the metal can hardly be

estimated at less than 3 per cent of the accumulated gold stock. Of course, if economic development generally should come to a standstill or be essentially retarded, the annual need for fresh gold would be correspondingly reduced. But have we really to expect such a slowing down of progress? After the destruction caused by the World War, the need for progress seems to be all the greater, and there is no technical reason why progress, at least at the pre-War rate, should not continue for any period worth our taking into consideration.

As far as we can see now, it is therefore necessary for the future to reckon with an annual need of fresh gold amounting to 3 per cent of the total gold stock accumulated at the beginning of every year. It is true that the value of gold is now quite different from what it used to be before the War. This is the result of a radical alteration in the whole monetary organization of the world, involving a relative reduction in the need for gold for monetary purposes. But, things being as they are, and assuming that no new alterations of this kind are going to take place, the stability of the present value of gold will depend on a growth of the accumulated stock of gold corresponding to the world's general economic progress.

The question we now have to answer is this: How far is the world at present able to fill this need by the production of fresh gold? I have just mentioned that in 1910 the world's stock of gold amounted to 52 billion gold marks. At the end of 1925 this gold stock had already risen to 75.5 billion gold marks, and at the end of 1927 it will probably be found to have exceeded 78 billion gold marks. The annual production required would then be 2,340 million gold marks. The annual production of the last few years has, however, only amounted to about 16 or 17 hundred million gold marks. There is therefore already a very considerable deficit. Assuming the gold production to remain constant, the ratio of the annual gold production to the stock of gold will soon come down to 2 per cent, and the production will thus cover only two-thirds of the need. The worst of it is, however, this need is always growing. When the world's total stock of gold, say in fifteen years, will have grown to 100 billion marks, normal progress will require an annual production of 3 billion gold marks. With the resources now known, we shall not be able to cover much more than half this need.

What, then, are the prospects of gold production for the future? This question naturally depends

in the first instance upon the conditions of gold production in South Africa, which is by far the most important gold-producing district in the world. It has been argued that an increasing scarcity of gold resulting in a rising value of the metal would stimulate the production, which might therefore be supposed to rise so much as to counteract the scarcity. This abstract argument, however, cannot be accepted without further examination.

A rise in the value of gold can make itself felt in the Transvaal only in the form of reduced costs of production, owing to the lowering of the South African price level. This price level is, however, already far below that which prevails in Europe and America. The official index number shows for the year 1925 the figure 128, and for April, 1926, the figure 120; for October, 1926, it was 126; for October, 1927, 122. We have obviously to expect an adjustment to take place in this great disparity between the price level of Europe and America and that of South Africa. A fall in the European and American price level, let us say from 150 to 140 or 130, need not therefore entail any lowering of the South African price level, which even in that case might in fact be expected gradually to rise. We therefore have no reason to expect that what in Europe or in America would

be called a rise in the value of gold would entail an increased output of gold in South Africa. Mr. Kitchin, an authority on gold production, stated before the Indian Currency Commission that the cost of production in the Rand district had in fact already fallen to the pre-War level.

The prospects of the production of gold in South Africa naturally very much depend on the supply of labor and capital. In both these respects the industry seems to be hampered by increasing difficulties. The South African mining industry has now become an industry that requires the most up-to-date technical appliances and a great deal of capital. It must also be borne in mind that this industry involves very great risks. It will, in fact, be found on close examination that a surprisingly large number of gold mines are being worked at a loss or without profit. An obstacle that stands in the way of satisfactory returns is the taxation, which has been very much increased and thus impedes the supply of capital. Capital for the South African mining industry can now scarcely be provided from other sources than wealthy mining companies which can set aside out of their current revenue sufficient sums for exploration and the opening up of new mines. But under present conditions it can hardly be expected that new capital

will be invested in the industry with the same readiness as hitherto.

The decisive point, however, is that the mines are beginning to become exhausted. The experts are agreed that the production of gold at Witwatersrand has reached its culmination and that a decline is to be expected. It is stated that the market value of the mines during the last fifteen years has fallen by 38 per cent. The leading authorities forecast a rapid decline in the gold industry during the course of the next ten or twelve years. This view is endorsed by Mr. Kitchin, who states that a mining period of twenty years is now generally regarded as the "optimum" for a gold mine and that in recent years fewer and fewer mines have been opened. The gold expert of the Johannesburg paper, *The Star*, describes the situation as follows: "It is no exaggeration to say that the Rand in about fifteen years more will be but the shell of its former self." The mines are not completely emptied, only the richer ores being extracted. A time will come when many hundred millions of tons of low-grade ore will be left in abandoned mines. But it will then be too late to reopen them. "The mines will be full of water; the timbers will have rotted and the workings fallen in; the present fine organization, too, will have

been dispersed." The writer considers that in fifteen years or so the costs of production will have been forced down, but that Witwatersrand must by that time have passed into a state beyond repair.

New deposits will, of course, be discovered, and the gold-mining industry in South Africa doubtless has possibilities. But the exploitation of these possibilities is attended by much risk and, as conditions have now developed, must be impeded by a shortage of capital. It is therefore quite out of the question to reckon with an automatic increase in the gold production in South Africa as a reaction against a possible rise in the international value of gold, or, in other words, against a fall of the general price level in countries possessing a gold standard. The slight further decrease in the costs of production which may possibly be attained can, according to Mr. Kitchin, scarcely do anything more than somewhat delay the inevitable decline in production.

Mr. Kitchin estimates the average production per annum for the entire world at 79 million pounds sterling (about 1,580 million marks) for the five-year period down to 1929 inclusive, and at 72 million pounds (about 1,420 million marks) for the next ensuing five-year period. He states

that in this calculation he has taken into account all the factors tending to increase production that he can reckon with in the Transvaal, Russia, and Canada, while he apparently considers that no appreciable increase is to be reckoned with in other parts of the world. Production on this scale is, however, far too small. The world production up to 1929, as estimated by Mr. Kitchin, would cover only two-thirds of the requirement as I have now calculated it. The increased requirement for the following five-year period would be covered to a still smaller extent. And, as I have already stated, in fifteen years the requirement will have grown so much that the output in prospect will not cover half of it. The deficiency is indeed already so great that even the discovery of a quite new gold field of the importance of Witwatersrand would hardly do anything more than fill up the gap for the moment, and would be insufficient to counteract the shortage that must follow the exhaustion of the present mines.

If the world's gold production reaches only half that amount of 3 per cent of the accumulated stock, which is required for the stability of gold prices, this means that these prices are bound to fall at a rate of $1\frac{1}{2}$ per cent a year. It might be held that such a moderate fall is not a thing which

ought to trouble us much. But, as the fall of the price level must continue as long as the shortage in the gold production exists, the consequences become serious enough. It is impossible to see an end to this fall in prices, which even with a constant gold production would continue at an automatically increased rate.

How serious the consequences of such a shortage in the annual gold production can be, is best shown by the experiences of the latter part of the nineteenth century. The abundant gold production in the two decades after 1850, in which California took such prominent part, about the middle of the sixties brought up the world's gold stock to some 18 per cent above the normal level. The succeeding decrease in the world's gold production, which continued until the South African mines began to be worked in the middle of the nineties, brought the relation between the actual and the normal gold stock down to 8 per cent below 100 — that is to say, from 118 to 92. Thus the shortage of gold production reduced the said relation in about thirty years by no less than 26 points. This fall in the relative gold supply was followed by even a greater fall of the general level of prices, which, according to Sauerbeck's index, within the same period fell from 101 to 62. It cannot be doubted

that the decline in the relative gold supply is responsible for a proportionate part of the fall in prices — that is to say, to the extent of about 26 points. The additional fall in prices must, as far as I can see, be ascribed mainly to the extraordinary growth of the demand for gold in the United States from the time of the Civil War to the time of their definite adoption of the gold standard. The monetary stock of gold in the United States grew from 89 million dollars in the middle of 1875 to 650 million dollars at the end of 1887; that is, after twelve and a half years it had become more than seven times as large. In comparison with these two leading factors in the development of gold prices, other factors, and particularly the extension of the gold standard to some European countries, do not play any appreciable rôle.

We may therefore draw the conclusion that in the long run, and when no extraordinary changes in the monetary demand for gold take place, the general price level, as measured in a gold standard, is directly proportional to the world's relative supply of gold, calculated in the way I have here shown. A continued shortage in the annual production of gold must, therefore, lead to a continued fall of the general level of prices. The experiences to which I have now referred show that the conse-

quences may be harmful even if the average annual fall in prices does not come up to 1 per cent. After the temporary boom connected with the Franco-German War in the beginning of the seventies, the world had to suffer from a general economic depression which lasted almost a quarter of a century. The generation that had to undergo this prolonged period of depression was very much hampered in the full development of its forces and found little happiness in life. And now, when we are in a position to survey the whole of this chapter of economic history and ascertain the factors that have determined it, it would certainly not do for us deliberately to acquiesce in a repetition of such distressing experiences.

Some people reject the idea of a deliberate regulation of the value of gold as involving an unwarranted state interference in our economic life. On this ground they combat all schemes for what they call a "managed currency." Such apostles of economic freedom would, however, do better to expend their energy on combating tariffs and other forms of unnecessary government control of trade. To provide a country with a reliable monetary system is, under all circumstances, an essential function of the state. In some form or other, our currency has to be managed, and whether well

or badly managed is the only question we have to decide. The gold standard, as I have shown here, cannot be any longer relied upon as an objective standard, automatically guaranteeing the stability of our money. Governments and central banks do unavoidably influence the value of gold, and very materially so. What we urge them to do is merely to subject this influence to rational principles and to coöperate in procuring for the common gold standard of the world the highest possible stability.

In the *Memorandum on the World's Monetary Problems*, which I wrote in 1920 on the invitation of the League of Nations, I emphasized the necessity of economizing in the use of gold in order to prevent a rise in its value. I then said (pp. 80-81): "The present low value of gold is mainly the consequence of a relatively diminished demand for gold for monetary purposes. The actual circulation of gold is very generally abandoned, and the great central banks have reduced their claims on relative gold coverings considerably. Should a return to pre-War conditions in this respect set in, the inevitable consequence would be an enhancement of the value of gold. To avoid this, it is necessary that all countries should abstain from measures for reintroducing an actual gold

circulation and content themselves with their present standard of gold holdings as basis for their paper circulation. Countries which are in a position to draw gold to themselves from the rest of the world should abstain from doing so. Thus the stabilization of the value of gold will clearly require, in the coming years, a close coöperation of all countries."

When the International Economic Conference met in Genoa in 1922, it had naturally first of all to give attention to the problem of the stabilization of the different currencies which, with the exception of the dollar, were at that time paper currencies without definite regulation and without any stable value. The Conference, however, did not confine itself to this question, but studied also the problem of the stabilization of the value of gold. The Conference proposed a collaboration of the central banks and an international Convention to be held at a suitable time. The purpose of the Convention, according to Resolution 9 of the *Report of the Financial Commission*, "would be to centralize and coördinate the demand for gold and so to avoid those wide fluctuations in the purchasing power of gold which might otherwise result from the simultaneous and competitive efforts of a number of countries to secure metallic re-

serves. The Convention should embody some means of economizing the use of gold by maintaining reserves in the form of foreign balances, such, for example, as the gold exchange standard, or an international clearing system." In the more detailed reform program of the Genoa Conference it was particularly said that the assets held as reserve for the maintenance of a currency at its gold value need not necessarily consist of gold. A country may, according to the plan, "maintain in any other country reserves of approved assets in the form of bank balances, bills, short-term securities or other suitable liquid resources." "Credit will be regulated," it is further said, "not only with a view to maintaining the currencies at par with one another, but also with a view to preventing undue fluctuations in the purchasing power of gold."

Thus the danger of coming fluctuations in the purchasing power of gold was perfectly clear to the Genoa Conference, and the means it recommended for meeting the danger were sound. That the Conference actually had the menace of a scarcity of gold in view is proved by the fact that it recommended that some countries should establish a free market in gold and "thus become gold centers." This idea of a concentration of the

world's gold reserves in order to restrict the monetary demand for gold may be regarded as the ultimate consequence of the system of central banks as developed in Europe and of the American Federal Reserve System.

Now, after six years of continued endeavors, the Genoa program of creating certain gold centers is realized, the free gold markets of New York and London having already for some years given a considerable stability to the gold standard and thus been of great service to the other countries striving to reorganize their currencies on a gold basis. A continued and most intimate coöperation between New York and London must obviously remain the fundamental condition for the soundness of the world's currency system. The other side of the Genoa program, namely, the reduction of the gold reserves of those central banks which cannot be regarded as gold centers, has not been satisfactorily fulfilled, many countries still keeping their gold reserves on an unnecessarily high level.

In regard to gold reserves, the recommendations of the Genoa Conference have proved to have been farsighted and well adapted to their purposes. The program of stabilization of the value of gold must, however, necessarily contain another point, which was not taken up in the Genoa plan.

In the Expert Committee of the Conference, of which I had the honor to be a member, I proposed a resolution to the effect that gold should not again be put into circulation in the form of gold coins. The motive for this proposal was, of course, as I have already explained, that a demand for gold for currency purposes would inevitably lead to such an aggravation of the scarcity of gold as would endanger the whole program of stabilization of the value of gold. However, it proved impossible to reach unanimity for this proposal, which was therefore dropped. Nevertheless, subsequent experiences were to show the essential importance of not again admitting gold into circulation. In fact, as I shall presently show, the greatest progress in the way of economizing in the monetary use of gold has been gained precisely by excluding an actual circulation of gold from the new gold standard systems that have been established.

This was done when the German currency system was reconstructed on the Dawes Plan. The new German Reichsbank was obliged to keep its currency on a par with the gold standard currencies, and for this purpose to buy and sell foreign exchanges at prices within a certain margin of the theoretical gold parity. But no gold coins were

put into circulation, and the notes of the Reichsbank were not redeemed in gold coins. From the point of view of the gold economizing policy, this constitution of the new German currency was, of course, of great importance, as the pre-War circulation of gold coins in Germany was very considerable. From the point of view of monetary principles, however, the German arrangement had no decisive importance, because it was looked upon as a preliminary solution intended to be followed by more definite regulations.

The decisive step in the direction of excluding gold from circulation was taken by Great Britain, when that country decided in April, 1925, to return to the gold standard. The British currency was by that step brought back to its old gold parity, and rules were laid down in order that this parity should be guaranteed for the future. The notes of the Bank of England were, however, not made redeemable in gold coins. The guarantee for the parity was instead found in the obligation on the part of the Bank at any time to sell gold in bars at a fixed maximum price.

The immense importance of this step can only be realized if we remember that the gold standard was originally created in England and that the whole world had always been accustomed to look

upon the English monetary system as a model for every gold standard. When England decided to abolish gold circulation and the redemption of notes in gold coins, it was at once made clear to the world that such a gold standard was no longer to be regarded as in any way second-class. Thus the scope for the policy of economizing in gold by excluding it from circulation became immensely widened. But even from a scientific point of view, the new monetary system of England has a deep significance. Everybody can see that the new English currency is a paper standard, systematically regulated so as to be kept at a fixed par with gold. Thus the essential character of the gold standard is made clear and the way is opened towards a better understanding of the whole theory of money. This has a far-reaching practical importance. Once people see that the problem before them is to maintain, by continual efforts, a paper currency at a certain parity, they will be quite clear about the means that have to be applied for such a purpose, and they will not be so easily misled by traditional devices which refer to matters of secondary importance. The percentage ratio of gold reserves to liabilities will no longer enjoy the almost superstitious veneration which has hitherto been bestowed upon it, and it will be generally

realized that the value of a currency is essentially determined by the scarcity in the supply of means of payment. The attention of the public will then be directed, as it ought to be, to the regulation of this scarcity, and the days will have passed when it was possible to get the public to believe that an unlimited supply of means of payment could be balanced by any gold reserves or was at all compatible with a policy of monetary stabilization.

Some people would like to call the new English standard "a gold exchange standard." It is often believed that this is something else than the real gold standard and that this distinction possesses a deep scientific meaning, of which no economic student ought to be ignorant. This view has, as far as I can see, no real foundation. The circumstance that gold coins circulate in a country is of no essential importance for the monetary standard of the country; and the obligation for the central bank to redeem its notes in gold coins is, from the point of view of the gold standard, only a particular means of forcing the bank to maintain its currency in its fixed parity with gold. But this means is not in any way necessary. The only essential thing is that the currency be kept at par with gold; and the bank can just as well be forced to do this by the obligation to buy and sell gold

or foreign gold exchanges at certain fixed prices. If this is recognized to be the essence of the gold standard, it will also at once be seen how intimately connected the different gold standards of the world must be with one another and how futile is the idea that a single country could regard its gold standard as a private matter concerning itself alone. But this is a question which I shall have ample opportunity of explaining further in my next lecture.

For the gold economizing policy, India's demand for gold is necessarily a factor of very great importance. Had India, as was contemplated, adopted a gold currency in the old style, with gold coins in circulation, a new demand for gold would have been created which would have increased the world shortage of gold in an alarming degree and would practically have frustrated the policy which aims at restricting the requirements of gold. The risk was so much the greater as the creation of new big demands for gold would in all probability have intensified the eagerness of various countries to guard their accumulated gold reserves and, if possible, to increase them. From that point of view the labours of the Indian Currency Commission have been of the very greatest interest. For my part, in submitting my evidence to the

Commission, I strongly emphasized the importance, in the interest of the world in general and of India herself in particular, of obviating the creation of a quite unnecessary demand for gold. I also endeavored to make it clear that the Indian currency could very well be maintained at a stable parity with gold and thus in all respects do the same service as a gold standard in the traditional style, without having recourse to such an extremely revolutionary measure as that of exchanging India's silver currency for a currency of gold in circulation. The Commission have in essentials adopted the same point of view. The Commission state that they have been "convinced that it would be most imprudent not to take into account the possibility, indeed the probability, that unless great economy is exercised in the use of gold, both in regard to its use as a commodity and its use as money, we have to look forward to a prolonged period of steadily falling commodity prices throughout the world." The Commission further point out that "a large extra demand from India would cause increased competition for gold among the countries of the world and lead to a substantial curtailment of credit." On the basis of authoritative information from the United States, the Commission came to the conclusion that the

surplus of free gold in that country is no larger than will be required for the reconstruction of the monetary system of other countries, as well as for the growing requirements of the United States themselves, and thus that the said surplus will probably be absorbed in a comparatively short space of time. The essence of the Commission's proposal is that the ordinary medium of circulation in India should remain, as at present, the currency note and the silver rupee, and that the stability of the currency in terms of gold should be secured by making the currency directly convertible into gold for all purposes, but that gold should not circulate as money. The Commission propose that the projected Indian central bank shall be placed under obligation to buy and sell gold in bullion, in quantities of not less than four hundred ounces of fine gold, and the Commission rightly point out that this "gold bullion standard" is a real gold standard. The silver rupee is still to retain its character of unrestricted legal tender.

The recommendations of the Commission have in principle been adopted by the Indian Government. It may thus be hoped that the danger to the gold supply of the world, which was involved in the endeavors to create a gold circulation for India, has been averted, at any rate for a long time

to come. It may also be hoped that the consciousness of this fact will exercise a tranquilizing influence on those countries which possess unnecessary gold reserves, and that those reserves will be more readily placed at the disposal of the shortage of gold. We must, however, realize that the interests of the gold producers require an extended use of gold and a higher value of gold, and that the South African gold mine companies in particular will make every possible effort to further their interests. It is therefore important to follow the situation with unremitting attention and to support the endeavors which are being made, in the real interest of the world, to maintain the value of gold at its present level, and thus to avoid the endless economic depression which would result from a steady fall of commodity prices over a long period.

III

THE NEW GOLD STANDARD

Most countries having in the last few years reverted to the gold standard, it is generally believed that a restoration of the pre-War monetary system has thereby been brought about. On the surface everything is as it used to be, and people unaccustomed to looking deeper into things fail to understand that any essential alteration has taken place. Still, the change is radical, and our post-War gold standard is in reality quite a different thing from what we had before the War. The essence of the old gold standard was that the currency of a country was connected with the metal gold and that thereby its value was fixed in terms of gold. Gold was looked upon as having an independent value. A currency linked to gold possessed the same stability of value as gold itself and was thus withdrawn from all arbitrary influences. By being connected with gold, the monetary standard ceased to be a standard that could in any way be "managed." For even if the value of gold could vary, it was at least not subject to

any arbitrary alterations, but could be relied upon as a physical fact.

All this has disappeared. We now know that the value of gold can be controlled by a suitable regulation of the world's monetary demand for gold. This alters the whole relation between currency and gold. Our ultimate purpose is now to give our currency a fixed value in terms of commodities. We regulate the value of gold with a view to making it correspond to that fixed value of our currency. In its exterior appearance, our currency is a gold standard, in so far as it is redeemable in gold; but instead of its value being determined by that of gold, the opposite is the case. The new system, however, has the advantage in common with the old one, that gold forms the common link by which all the different currencies are connected with one another. For a small country that has adopted the gold standard, the value of gold is still an outside fact serving as a guide for the regulation of its currency.

It is true that even before the War the monetary demand for gold was a factor influencing the value of gold and therefore also the purchasing power of every gold currency. Nevertheless, the present situation is in two aspects essentially different.

First, people now realize that a deliberate reg-

ulation of the monetary demand for gold is possible and may have an important influence on the value of gold. Such regulation is the object of world-wide discussion; and whatever policy may eventually predominate, we can hardly avoid influencing the value of gold in some way or other. This fact once acknowledged, it is natural enough that people should come to recognize the stabilization of the purchasing power of gold as against commodities to be the ultimate aim to be pursued. The present generation has also learned by experience that gold in itself does not at all possess that stability of value which earlier generations believed in, and that, in reality, variations in the value of gold may have quite disastrous effects. From now on, therefore, a systematic regulation of the value of gold must be a paramount necessity.

Secondly, the influence on the value of gold has been concentrated in one country, the United States. The monetary policy of this country, therefore, has acquired a first-rate importance in regard to the value of gold. This circumstance has, of course, accentuated the fact that the value of gold is no independent factor of our monetary system but a result of monetary policy. When nowadays any other country reconstructs its mon-

etary system as a gold standard, it does not in fact link it to an independent value such as that which gold was supposed to have before the War, but simply connects it with the value of the dollar, the immediate practical aim always being to keep the dollar exchange of the new currency at a fixed parity. Everybody must be able to see how radically altered the whole character of the gold standard has thus become.

Obviously, under such circumstances, we must in the first instance concentrate our attention upon the question: What is the real position of the United States with regard to the new gold standard? We have then to notice two important facts. The first is that the United States have accumulated a very large gold reserve which has not been used for a corresponding credit expansion. Only part of this accumulated gold is actually needed as a basis of the American monetary system. The rest forms an extra reserve, from which the United States are able to supply almost any amount of gold that could practically be asked for by the outside world. And, what is very important, this can be done without touching the ordinary gold cover of the currency, and therefore also without in any way affecting the supply of means of payment within the United States. The

second fact is that the United States are wealthy enough to allow themselves the luxury of storing any amount of gold that may be sent to them without letting such fresh gold supplies have any effect in the way of credit expansion. Thus gold exports need not cause a fall in the American price level, nor need gold imports cause it to rise. Under such circumstances the United States are in a position to exercise an independent control over the value of their currency; the value of the dollar is simply the result of the way in which the monetary authorities of the United States choose to regulate the general supply of means of payment in the country. As the United States, in the way I have explained, are always able to buy and sell gold at fixed prices in the dollar so determined, the value of gold is bound to adjust itself to that of the dollar. The result is that the monetary policy of the United States determines the value of the currency of every other gold standard country. The Federal Reserve authorities therefore control not only the general level of prices in the United States, but also the price levels of all other gold standard countries in the world.

This situation is so new and has such serious consequences that it is worth while to give it closer examination. The position of the United States is

best understood if we contrast it with that of other gold standard countries. In these other countries the supply of gold is generally so limited that it is considered necessary to counteract any outflow of gold on a large scale. This is effected by a reduction of credits, which tends to force down the level of prices and thus to stop the outflow of gold. No doubt it may be objected that some of these countries possess an unnecessary surplus of gold and that they could quite well be satisfied with a lower percentage of gold cover. But for the time being we have to reckon with the current public opinion and the regulations of the bank laws of the countries concerned. Further, these other countries consider themselves not rich enough to afford to let any extra influx of gold be left unutilized for an extension of credits in traditional proportions. Gold imports are therefore inevitably followed by an increased supply of means of payment and consequently by a rise in prices.

In this respect the United States hold a very different position. When the central bank system possesses a gold cover of 70 to 80 per cent for notes and deposits, while only a ratio of 35 to 40 per cent is required by law, it does not in the least matter whether this gold cover is increased or reduced by a few per cent. Hence the leaders

of the United States bank policy are not obliged to pay any consideration whatever to minor fluctuations in the gold cover. This means that the Federal Reserve System is in a position, of course within certain limits, to regulate the supply of means of payment in the country without any regard to the movements of gold. Thus the Federal Reserve System exercises an independent influence upon the American level of prices. Other gold standard countries are compelled to follow suit and to adjust their price levels in conformity with that of the United States. Otherwise they would expose themselves to a depletion of their none too abundant stocks of gold, or else to an influx of gold, which they could not afford to leave unutilized. The increase or decrease in the stock of gold of the United States, which would be connected with such movements of gold, would have no material bearing on the monetary situation of that country, which, in spite of the fluctuations of its monetary stock of gold, would be quite able to keep its general level of prices constant. Consequently the price level of the United States has a determining influence on the world price level, which is thus actually regulated by the leaders of the United States bank policy.

How, then, has this remarkable situation arisen?

Some people seem to have been a little too hasty in accusing the American authorities of what has been thought to be an injurious development. Particularly, the United States have been represented as having deliberately amassed an enormous stock of gold in order to acquire world-wide control over the metal. It has even been said that they have instituted a kind of gold valorization, comparable to the Brazilian valorization of coffee. This, of course, goes much too far. Gold has flowed to the United States, first, because ruined countries sent their gold to America as the last means of paying for commodities urgently needed, and secondly, because a series of countries have found it suitable to keep a gold balance in the United States as a guarantee for a reconstructed gold standard. So far the United States have clearly no direct responsibility, and it is quite true, as has been pointed out in America, that the outside world could take back very considerable quantities of gold from the United States at any moment, should it choose to do so.

With more reason, the United States may be made responsible for their favorable balance of payments, which has necessitated great imports of gold. The liberal credits which the United States have extended to the rest of the world have

to a considerable extent been balanced by capital movements in the opposite direction, and the net capital export is insufficient for adjusting the balance of payments. It may reasonably be held that this situation could be improved by lowering the general level of interest rates in the United States. It may therefore also be said that American banking authorities ought to regulate their discount rates so as to encourage such an export of capital as would make gold imports unnecessary.

Further, it is possible to argue that the United States, by their highly protective tariffs, have laid artificial hindrances in the way of the import of goods, and have thereby forced their debtors to pay in gold to an extent which could easily have been avoided under a more liberal commercial policy.

Of much greater immediate importance, however, at least for the theory of money and as a guide for our monetary policy, is that we should clearly realize the actual fact that the United States now occupy such a singular position in the monetary system of the world. If all the gold currencies of the world are regulated so as to be kept at the same value as the dollar, the stabilization of the world's monetary system is ultimately dependent upon the stabilization of the dollar. A

stable dollar is therefore no longer merely a matter of internal American interest but becomes a question of primary importance for the whole world. Thus the leaders of the monetary policy of the United States have a great responsibility. Their management of the currency entrusted to them cannot but have far-reaching consequences for the world's economy at large and must therefore naturally be followed with the greatest attention by every country where any expert knowledge of international finance is to be found. Such a position is perhaps not enviable. But as it is inevitable, leaders of American banking policy would do well unreservedly to acknowledge their responsibility. Responsibility is also in itself a splendid feeling, capable of developing the highest qualities and the highest moral strength of first-class men. Some Americans seem to look with a certain amount of suspicion upon a development that would make the leaders of their monetary policy in a certain sense the trustees of the world's welfare. There is no real reason for such a feeling. The interest of the world in the matter of monetary stabilization in no way differs from that of the United States. This country cannot reasonably choose any other aim for its monetary policy than the most complete stabilization of the purchasing

power of the dollar that it is practically possible to realize. But such a policy will at the same time fully satisfy the needs of the world. This fundamental identity of interests ought to make a co-operation of all countries for the stabilization of the world's monetary system a program that should be comparatively easy of realization and that at any rate should not be hindered by divergent political interests.

In this situation a clear theory of the regulation of paper currencies obviously becomes a matter of first-rate importance. If the dollar is a free currency the value of which is determined by the supply of means of payment, it is essential to know by what means the Federal Reserve System can regulate this supply so as to secure stability to the purchasing power of the dollar. The whole question depends in the first instance upon the connection between discount policy and price level, and it is therefore necessary to dwell for a moment upon this interesting chapter of economic theory.

Let us then consider a single country possessing a paper currency that is controlled by the note issue of a central bank. It is then evident that the discount rate is, and must be, the factor that ultimately determines the general level of prices. Should the bank issue an unlimited amount

of notes, the level of prices might rise to any height. If any person had previously harbored doubts on this subject, those doubts must have been dispelled by the experience of the recent period of inflation. It is also evident, then, that the bank can force down the level of prices to any extent by correspondingly restricting the note circulation. As checks drawn on the central bank obviously play the same part as notes, we should here have to reckon not merely with the note circulation but with the aggregate amount in the country both of notes in circulation and of drawing-account balances with the central bank, or, in other words, with the total sum of "bank cash." It is thus the amount of "bank cash" in the country that determines the general level of prices.

Now, a central bank places its bank cash at the disposal of the public chiefly in the shape of loans and particularly by discounting bills. Hence the extent to which the country is supplied with bank money must depend on the terms of those loans. The bank may, of course, restrict its lending by making more stringent conditions regarding the kinds of bills it is prepared to discount, and by similar measures. But all such restrictions are of subsidiary importance in comparison with the

price the bank demands for its lending — that is, the discount rate. The discount rate may be supported and made more effective by the sale or purchase of securities on the part of the central bank. But it is evident, and also universally acknowledged, that the discount rate must be the decisive factor in regulating the supply of bank cash, and thus likewise in regulating the general level of prices.

The next question is: What must be the height of the discount rate in order that the price level may be kept unchanged? The general answer to this question is, of course, that the discount rate must be so high as to ensure that the amount of bank cash in the country shall be adjusted to the fluctuating demand. When we speak of fluctuations in the demand we must, however, consider only those which are due to fluctuations in the volume of trade, or, more generally, in the extent of the payments to be made. On the other hand, no consideration should be paid to those fluctuations in the demand for bank cash which are due to changes in the general level of prices. For it is these very changes that have to be prevented.

The above, however, does not directly answer the question of what discount rate the bank should maintain. This is a matter that requires further

analysis. When a central bank pays out its bank cash in the form of advances to the public, the bank unquestionably intervenes in the general capital market. But this market should not be disturbed. The existing scarcity of capital in the country, if conditions are left undisturbed, results in a certain rate of interest, which brings about an equilibrium between the supply of and the demand for capital. This rate of interest must not be dislocated by the intervention of the central bank.

It would be easy to say that the central bank should maintain a discount rate which corresponds to this natural rate of interest on capital. But then it must first be observed that an equilibrium of the capital market can be defined in a strict sense only on the assumption that the purchasing power of the monetary unit remains constant. The rate of interest which in theory corresponds to an equilibrium of the capital market is, therefore, necessarily a rate compatible with an invariable unit of money. The central bank can know this rate only when it has succeeded in stabilizing the purchasing power of its currency.

Further, the rate of interest of the capital market is of no practical value as a guide for the central bank, for the reason that the capital market is not something entirely apart from the lending

of the bank. In fact, the whole sphere of activity of the bank more or less coincides with that of the capital market. Thus, although the bank must naturally always follow with the closest attention the movements of the rates of the capital market, it cannot rely upon these rates as a safe guide for its own policy, its own discount rate being always one of the principal factors influencing the rates in the capital market.

It is no function of the central bank to increase, by its lending, the resources of the capital market. Those who require capital must be satisfied with the means placed at the disposal of the capital market by the real savings of the community. If the bank, however, maintains too low a discount rate, this will entice a large number of borrowers to the bank, and the demands for loans will be supplied to an excessive extent. But this will be possible only if part of these demands are met by newly created bank cash instead of by real savings. Should this happen, the amount of money in circulation in the country will be unduly increased. An artificially created purchasing power will be placed in the hands of the public, and the general level of prices is bound to rise.

Should the central bank maintain too high a discount rate, the result would be the reverse. The

public would begin to some extent to repay their debts to the bank; there would be a tendency for money to flow back into the bank, whereby the amount of money in circulation would be restricted, and the level of prices would consequently fall.

It is thus a condition for a constant level of prices that the central bank, in lending money, shall not in any way disturb the equilibrium in the capital market, the supply of means to which should, broadly speaking, be determined by the real savings of the country. General economic progress, however, renders it necessary that the supply of bank money in the country should be increased. This increase normally requires that the central bank, in lending money, should annually place a certain amount of new bank cash at the disposal of the public. This amount, it may be said, takes the place of real savings as a means for supplying requirements of capital. It should be noted, however, that, in proportion to the entire amount of new savings, this annual increase in bank cash represents a very insignificant figure. It is therefore necessary to maintain the broad rule that the country's requirements of capital shall be supplied from its current real savings, and that the central bank should regulate its lend-

ing so as not to disturb this normal state of things.

Now, the only tangible evidence that this condition is really fulfilled is that the level of prices remains unchanged. The central bank, which, in its lending, has control of the very source from which the country is supplied with money, must keep this lending within such limits as will ensure that no change occurs in the level of prices, and this it can do by fixing a proper price for its loans. This price cannot be constant, but must fluctuate according to the conditions on the capital market, and the bank must therefore keep in daily touch with these conditions. Endeavors on the part of the central bank to prevent trade fluctuations owing to speculation lead in fact to a discount policy which, generally speaking, obliges the capital market to confine itself to its own resources. But an entirely reliable basis for judging the correctness of the discount policy pursued cannot be obtained until its effects on the general level of prices can be surveyed. If this price level is continually rising, we may be assured that the discount rate of the central bank has been too low. Vice versa, a continued fall of the level of prices indicates that the central bank is maintaining an unnecessarily high rate of discount.

According to what I have now said, the discount

rate of the central bank should always be regulated with a view to keeping the general level of prices in the country as constant as possible. Sometimes, however, other motives are allowed to disturb this policy. The most important case is when a central bank tries to combat a rising wave of speculation by an increase in its discount rate which is not justified by any tendency towards a rise in prices. As long as speculation is confined to the stock exchange and thus does not directly affect the prices of commodities, it ought, as far as possible, to be checked by other means than a raising of the discount rate. Means of restriction that only affect the stock exchange itself should be preferred. The insistence upon a wide margin of security for all loans to the stock exchange is an example of such means. A raising of the discount rate should be avoided if it must be expected to cause a fall in the general level of prices which is not in the interest of the general policy of price stabilization.

After this theoretical discussion of the problem, we are better equipped for an examination of the actual management of the dollar by the monetary authorities of the United States.

The quite abnormal proportions which the inside and outside movements of gold assumed dur-

ing and since the War forced the Federal Reserve System to the greatest exertions for making itself independent of these movements. After the violent deflation of 1920 the idea that a new influx of gold ought not to be allowed to cause a new rise of the general level of prices gained a predominant influence. From this time on, the excessive gold supply has been treated as an extra reserve, not to be allowed to have any influence on the supply of bank cash, which should be regulated exclusively with a view to the highest possible stabilization of the purchasing power of the dollar. Taking a summary view of the history of the dollar since 1922, we cannot but give the Federal Reserve authorities the highest credit for the very valuable service they have rendered in stabilizing the value of their own currency and thereby indirectly stabilizing the value of gold and of all foreign gold currencies. The way in which the American monetary system has been managed by the Federal Reserve Board has been much criticized from different points of view, both in America and in Europe. The critics, however, seem to have this in common, that they have not duly appreciated the immense value of the Federal Reserve administration in respect of the sound economic development of the United States as well

as of the world at large. Without the general stabilization of the purchasing power of the dollar, which has been carried through since 1922, the world-wide restoration of the gold standard would hardly have been possible, the world's monetary system would have been left in a state of confusion, and the recovery of the world's production and trade would have been delayed, to the serious detriment of all countries. In the economic reconstruction of the world, which has made such wonderful progress since 1922, the Federal Reserve System has had a very prominent share.

In making this general acknowledgment we should not, however, overlook the deviation from stability which has lately occurred. In fact, the American price level has for more than two years shown a downward trend. The Bureau of Labor index number of wholesale prices was depressed from 161 in February, 1925, to 144 in April, 1927. This reduction of 10 per cent is too serious to be neglected. No doubt it has had an adverse effect upon the economic development of the United States; and although the country has been wealthy and progressive enough to triumph over the difficulties, it seems unquestionable that very important interests — perhaps first of all, those of agriculture — would have been better served by a

more complete stabilization of the dollar. This is, of course, still more true if we take account of the general depression of trade and the monetary difficulties which have been brought on other countries by the continual rise in the value of gold.

Such well-founded criticism has sometimes been met by the remark that the United States cannot be expected to inflate their currency in order to please the rest of the world! The remark is, of course, futile. No sensible person would ask for such a thing. What the world demands from the American banking authorities is simply that they should carry on the stabilizing policy, which they have actually followed in the last few years, in a still more consistent and efficient way.

In the light of the general theory of paper standards which I have here outlined, it seems clear that the continued fall in prices which took place in America from February, 1925, to April, 1927, must be ascribed to an unnecessarily restrictive discount policy. On the whole it is very instructive to study the influence of the Federal Reserve rates of discount on the American price level during the whole period from 1922 to 1927. The unduly low discount rate in 1922 entailed a considerable rise in the general level of prices, but after the discount rate was raised at the beginning of 1923

the movement of prices took a downward turn. Not until after several reductions in the discount rate in the middle of 1924 did the movement of prices again show an upward trend, which continued until February, 1925, when a more rigorous discount policy was enforced. It is this latter policy that brought about the lowering of the American price level, which continued almost without interruption for more than two years.

In view of these facts, it is of particular interest to see how prices were affected by the reduction from 4 to $3\frac{1}{2}$ per cent which took place in August, 1927. As we might expect, the figures show a distinct upward turn of the price level. Professor Irving Fisher's weekly index number reached a minimum of 135.1 on August 11. On October 13 it had risen to 146.2 and had thereby nearly attained the average level at which prices had been stabilized since 1922. The efficiency of the discount policy as a means of regulating the general level of prices seems to be particularly well established by this experience.

During the past year the financial press on both sides of the Atlantic has given much attention to the question as to who is ultimately responsible for the steady fall of the general level of prices which has been proceeding since 1925 — that is to

say, ever since a number of important countries reverted to the gold standard. When it is said that this fall in prices is attributable to a too great stringency in the American bank policy, defenders of this policy are able to quote masses of figures showing how immensely the lending and investments of the American commercial banks have increased during the last few years. But what do these figures really tell us? Merely that capital has been accumulated in the United States on a very large scale, and that a great number of people prefer to deposit their savings in the banks and let them arrange for the ultimate investment rather than take the trouble upon themselves. At a time of growing confidence in the banks, it is by no means remarkable that their services as agents for the investments of capital should be made use of to an extent growing even more rapidly than the general prosperity of the country. This has nothing to do with the supply of money in the country, nor with the way in which the supply of money affects the general level of prices.

What we call the general level of prices is in fact merely an index of the purchasing power, or value, of money. But the value of money cannot possibly be dependent on anything but the supply of money in relation to the demand for money.

Even the value of money must follow the general law of supply and demand. The prevalent notion that the general level of prices is determined by a number of other factors, such as the costs of industrial production, ocean freights, etc., must be relegated to the domain of economic dilettantism. If only the supply of means of payment is adjusted to the varying demand for such means, there is no reason whatever why there should be any change in the general level of prices. On the assumption that the supply of means of payment remains unchanged, an increased volume of business or a diminished velocity of circulation would indeed entail the lowering of the price level. But such a fall of the price level can be avoided by always adjusting the supply of means of payment at any given moment to the fluctuations in the demand. Hence the ultimate explanation of changes in the price level must always be that the supply of means of payment has not been adjusted to the existing demand for them.

In the particular case before us, this means that the supply of bank cash from the side of the Federal Reserve System during the years 1925-1927 has not been quite sufficient for meeting the growing needs of American business life. Of course there can be no question of a great deficiency in

this supply. But even a shortage of bank cash that is confined within narrow limits is bound to have an effect in the direction of pressing down the general level of prices. And in fact it is impossible to find any other explanation for the 10 per cent fall of this level which has taken place in the said period.

The very fact that the Federal Reserve System lowered its discount rates in August, 1927, shows that the authorities were convinced that the rates had been too high and at the same time proves their intention to carry through the program of resisting any considerable deviations in the purchasing power of the dollar from the level of stabilization which had prevailed since 1922. The result of the lowering of the discount rates in August is also a sufficient proof of the power of the Federal Reserve authorities to carry through such a program.

It is a very natural conclusion that the maintenance of the said stabilization level of prices should in future, as hitherto, be the aim of the banking policy of the United States. This conclusion seems only to be the more justified as the United States Bureau of Labor in October, 1927, reconstructed its index number for wholesale prices on the basis of the average prices for 1926. This

basis corresponds very closely to the average level for the years 1923-1926.

It may be assumed that the selection of 1926 as a new basis is an indication that the price level then attained is regarded as normal. On this assumption we are entitled to expect that the bank policy of the United States will for the future be aimed at maintaining the price level as near as possible to the figure 100, according to the new basis of calculation. This readjustment of the price level has considerable moral bearing, as the general public are thereby brought to realize that the pre-War price level must now be looked upon as belonging to the domain of history and lacking actual importance. So long as the price level was approximately 150 in relation to 100 for the base year 1913, it was natural for the public to cling to the idea that the pre-War price level was the only really normal level, towards the ultimate restoration of which all endeavors must be directed. This idea has undoubtedly exercised an injurious influence, and it is all to the good that it should now be abolished by the selection of a new base year.

The United States have taken this important step quite independently. Such a mode of procedure is obviously justifiable only for a country

which not only is conscious of its leading position in regard to the regulation of the value of money, but also fully recognizes the responsibility which that position entails.

In February, 1928, the discount rates of the Federal Reserve System were again raised to 4 per cent. The reason for this measure can hardly have been to stop the rise of the general level of commodity prices and force it down again. The price index figures did not suggest any need for such a policy. In the interest of the stabilization of the purchasing power of the dollar, no alteration in the discount rates was required. It is perhaps too early as yet to discuss the reasons for and effects of this measure. But in so far as it may have been dictated by a desire to check an undisciplined stock exchange speculation, it should once more remind us of the desirability of finding other means to that end and of not letting the measures adopted for checking such speculation affect the very stability of the monetary unit of the country.

We may now turn to the question of how the Federal Reserve System ought to meet the scarcity in the world's supply of gold that, according to our investigations, must be expected to make itself more and more acutely felt in the future. It is clear enough that America must accustom itself

to see with equanimity gold going out of the country and the percentage of gold cover of the Federal Reserve System falling considerably below the figures which have prevailed during the last few years. Such movements ought not to be allowed to exercise any influence upon the supply of bank cash from the Federal Reserve System, which in its banking policy should be exclusively guided by the aim of conserving the highest possible stability of value for the dollar. In order to give the Federal Reserve authorities the necessary freedom of action in this respect, it might ultimately prove necessary to alter the laws with regard to the minimum cover of the Federal Reserve System. These laws were framed under entirely different conditions and must be regarded as obsolete in the age of the new gold standard, when it is the value of gold that should be regulated according to an invariable dollar, instead of vice versa.

However, it must always be kept in mind that New York is necessarily one of the world's great gold centers and that it is therefore natural for the Federal Reserve System to keep a comparatively larger gold reserve than other countries require. An international concentration of gold reserves in the great gold centers, New York and

London, obviously requires a coöperation between all gold standard countries and particularly between England and the United States. The aim of this coöperation should be to enforce such economy in the monetary use of gold as is necessary in order to maintain gold at an invariable value. This stabilization of the value of gold is, as I have here explained, of fundamental importance for the well-being of the whole world. To represent a necessary coöperation between the leading gold centers as a sacrificing of American interests to British and European interests — as is constantly done in certain American quarters — is to give an absolutely false interpretation of the international relations here in question.

Evidently a successful international coöperation for the stabilization of the gold standard would be very much hampered if the central authority of the Federal Reserve Board were to be sacrificed to the greater independence of the several Federal Reserve banks. Certain tendencies in this direction have caused much discussion during the past year. Here again, a purely internal American interest is primarily at stake. American separatists should always remember that, whatever may be the independence of the different states, they have a common monetary standard

and are bound to keep the same dollar all over the country. This requires most essentially a central authority which is not reduced to being a mere decoration. If now and then critical remarks are made in Europe on the monetary policy of the Federal Reserve Board, everybody in America should understand that no enlightened European opinion has anything to object against the Federal Reserve Board as an institution, nor in any way shares the hostility towards this institution which is sometimes displayed by American separatism.

The absolute necessity of international coöperation on broad lines for the stabilization of the value of gold is most clearly seen if we only for a moment reflect on the alternative to such coöperation. This would obviously be a general and ruthless competition for gold, a consequent continual rise in the value of gold, and a corresponding world-wide economic depression for an unlimited future. A very disagreeable consequence of such a movement in the value of gold would be a general aggravation of all debts contracted in a gold standard, doubtless in many cases followed by an incapacity to pay debts or a refusal to do so. We must remember that the great part of the

world that would have to suffer from such a development has a very powerful weapon of defense. This weapon is simply the abolition of gold as a monetary standard. If a large number of important countries chose to take that step, gold would obviously be exposed to a most violent fall in value, a fall of which it is impossible beforehand to ascertain the limits. Such a fall would naturally mean an immense loss to those countries which had accumulated huge gold reserves and were big creditors in terms of gold, and would, furthermore, cause great economic disturbance and much international ill feeling. Everybody must see that such a development must be avoided at all costs.

The progress of civilization has always been characterized by humanity acquiring an increased command over nature. The course must be the same in the economic sphere. Future generations are certainly not going to make themselves slaves under the despotism of gold. If gold cannot be made to serve the economic welfare of humanity on rational lines, it will simply have to be dismissed, like so many other agents that have performed their service in the progress of civilization but are no longer suited to the task. But gold has done such valuable service, and doubtless

could still do so for a considerable time, that we should not give it up as a basis of our monetary system without having made the utmost efforts to accommodate the use of gold to the needs of modern society.

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